



Satellite Industry Response to Hurricane Katrina

Satellites = Redundancy, Ubiquity, Interoperability

SIA MEMBER COMPANIES



NORTHROP GRUMMAN





Mobile Satellite Services

- Immune to terrestrial hazards, communicate directly with orbiting satellites, work everywhere.
- Users included National Guard, American Red Cross, FEMA, cellular and wireline providers, utility workers, reporters, and people in search of relatives.
- Red Cross quickly deployed mobile satellite communications in affected areas.





Fixed Satellite Services

- **Following the first wave of responders, Fixed Satellite Services (FSS) were deployed for both critical and non-critical communications needs. Those utilizing FSS included:**
 - **Federal, state and local government**
 - **Schools, churches and local relief organizations**
 - **Businesses**
 - **News organizations**
 - **Gas, Electric, and Water Companies**
 - **Banks**
 - **Red Cross - Emergency Communications Response Vehicles (ECRV)**





Direct Broadcast Satellite and Satellite Radio

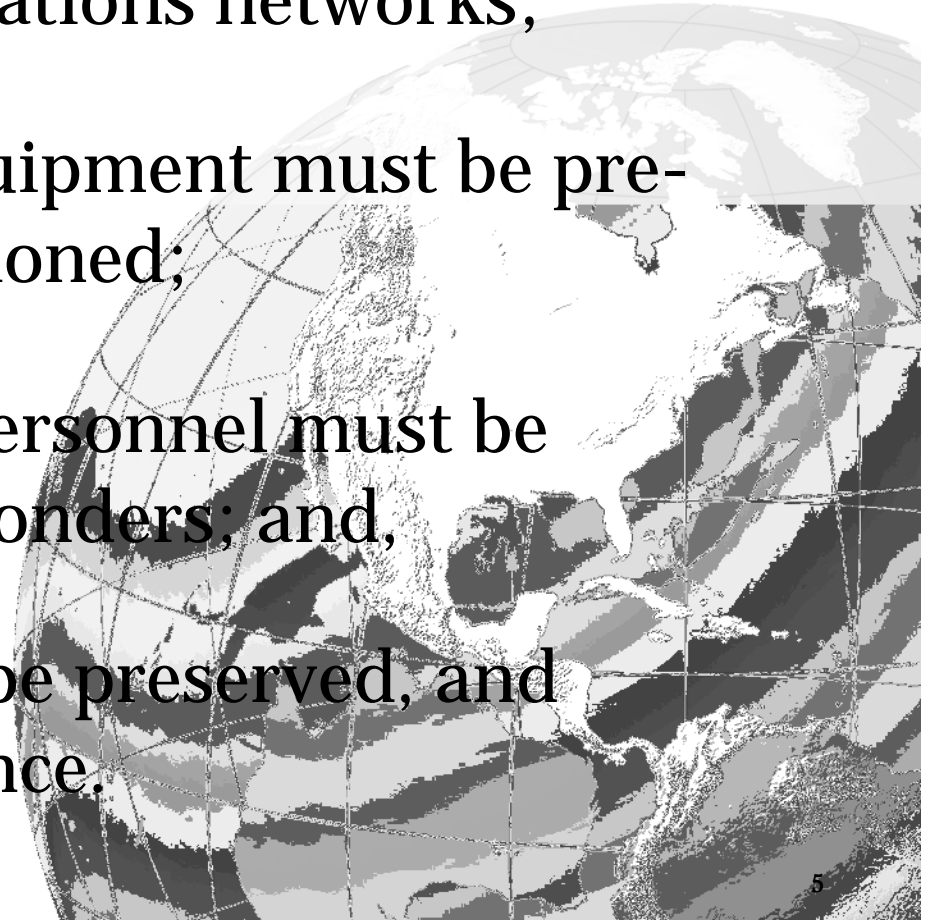
- **Both XM Satellite Radio and DirecTV provided FEMA and the Red Cross with a 24/7 dedicated broadcast station for disseminating hurricane-related information to first responders and the general population within the areas affected by Hurricanes Katrina and Rita.**
 - **Storms track**
 - **Evacuation routes**
 - **Storm clean-up**
 - **Road closures**
 - **School closings**





Recommendations

- Satellites must be an essential component of future critical communications networks;
- Satellite capacity and equipment must be pre-purchased and pre-positioned;
- Satellite operators and personnel must be credentialed as first responders; and,
- Satellite spectrum must be preserved, and protected from interference.





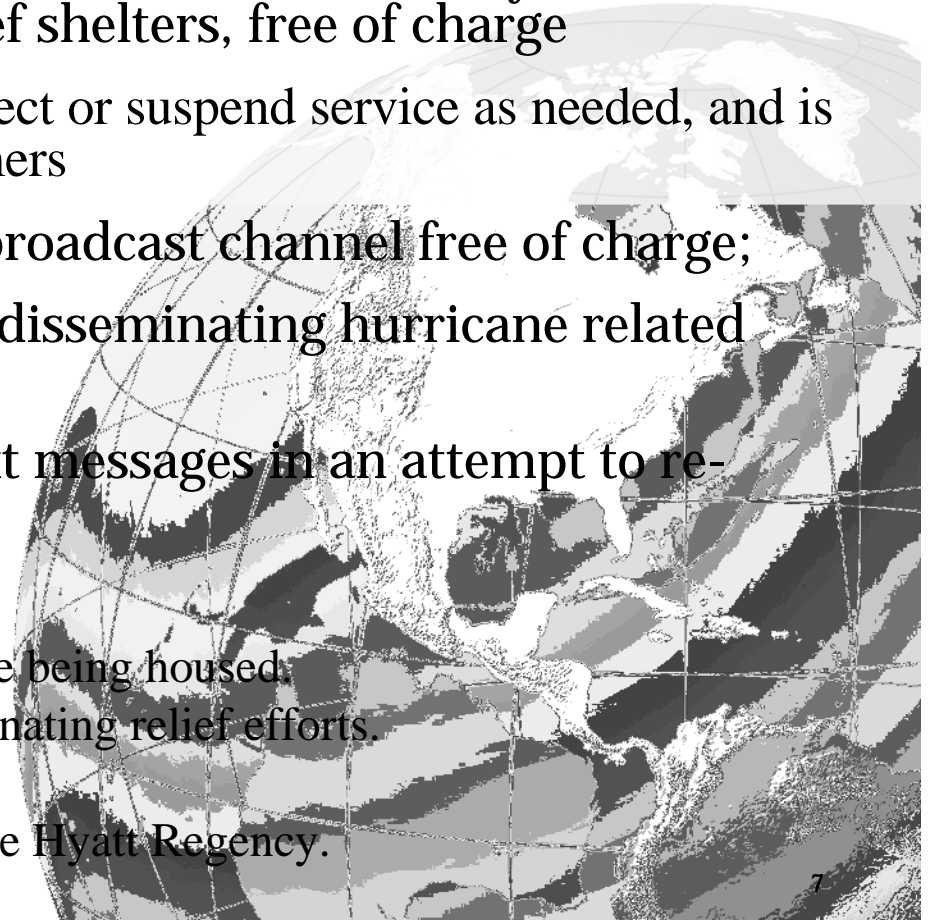
Satellite Company Case Studies





DIRECTV

- Worked with FEMA and the Red Cross to offer live feeds - free of charge - to shelters and command centers throughout the area.
- Installed DIRECTV receiver systems with live feeds at nearly 100 (to date) Red Cross/FEMA/Military/other relief shelters, free of charge
- DIRECTV is assisting customers re-connect or suspend service as needed, and is adjusting billing practices to these customers
- Since 9/1, dedicated a full time 24/7 broadcast channel free of charge;
 - Used by FEMA and Red Cross for disseminating hurricane related information
 - Scrolled thousands of personal text messages in an attempt to re-connect loved ones
- DIRECTV service connected to:
 - Military locations where relief workers are being housed.
 - USS Shreveport where the Navy is coordinating relief efforts.
 - Houston Astrodome
 - New Orleans Mayor's temporary site in the Hyatt Regency.





Globalstar LLC

Globalstar took proactive measures to prepare for the storm's impact and continues to maintain the highest level of service for those in need.



Globalstar Preparation In Advance of the Storm:

- **Prepositioned phones to strategic locations to ensure deployment within 24 hours to those requesting satellite phones.**
- **Utilized Globalstar's unique capability to re-allocate our gateway coverage footprints to increase capacity in the Gulf area.**
- **Globalstar network team monitored usage of Globalstar phones to ensure we effectively managed sudden increases in system usage.**

Globalstar Immediate Response to Affected Areas:

- **Within the first 96 hours of this disaster, Globalstar had deployed thousands of handsets and 12000 terminals within seven days to Gulf Coast region Emergency Responders**
- **Donated over 100 phones to the States of LA and MS for S&R personnel and victims**
- **Doubled the capacity for Globalstar calls to landline phones**
- **Within 24 hours, increased the ability for network access by 60%**
- **Increased active Globalstar spectrum allocation to handle increased volume**
- **Continues to re-allocate gateway coverage to maintain capacity in Gulf area**
- **Globalstar phone usage in the region increased by 560% and still**
- **maintained >95% call completion.**



Hughes Network Systems

- **The HNS response teams in the field who worked to re-establish Wal-Mart's satellite communications network reported that;**

"Wal-Mart is like the new FEMA in the Katrina impact area. Once the comms are back in operation, and the shelves are stocked, Wal-Marts are becoming 'life-support systems' for the local communities - with lines wrapping around their buildings to get supplies."

- **Restored service to current customers and deployed new satcom equipment/service using its large network of installers;**



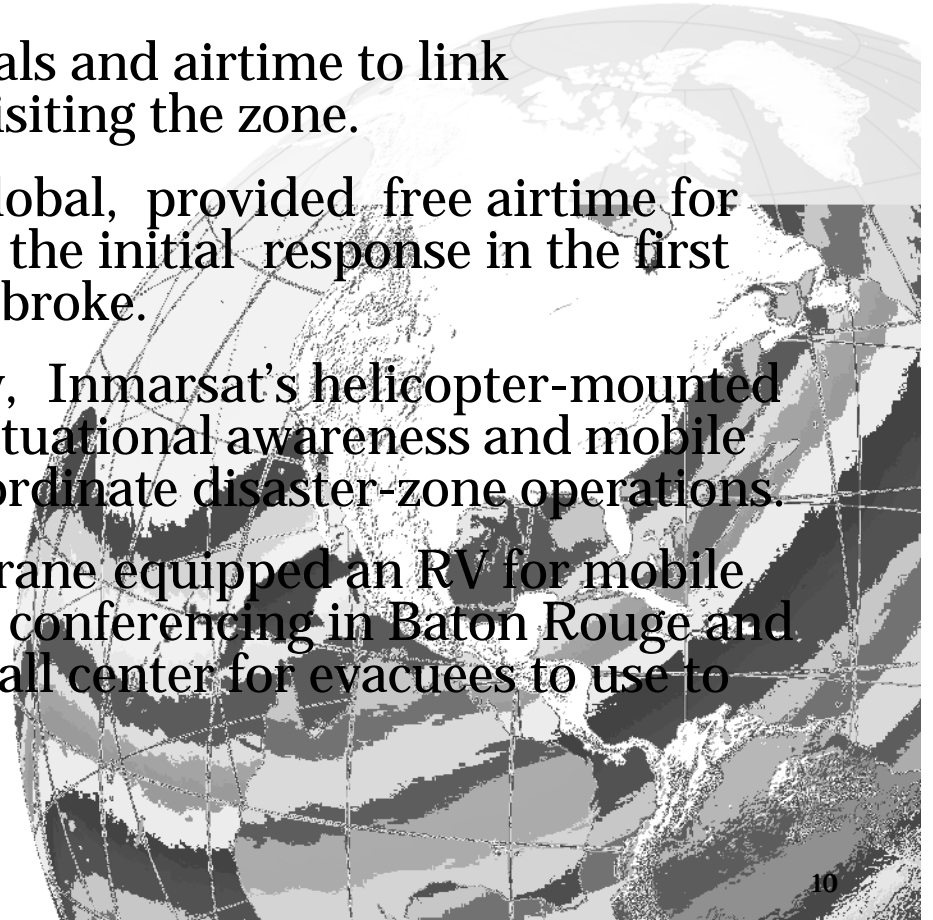
- **U.S. Department of Veterans Affairs - medical centers for accessing patient medical records, on-line ordering of prescriptions from pharmaceutical companies**
- **Insurance companies - processing claims**
- **Associated Press – processing stories**
- **Sheriff's command posts**
- **National Weather Service**
- **T-Mobile - installed sites in Texas for backhaul of hot spots**
- **Retail – Rite-Aid, Wal-Mart and others**
- **Florida Dept of Health**
- **Financial services company - transportable ATM to access cash**
- **Community Communications: Church facilities, Salvation Army**



Inmarsat



- Quickly reconfigured capacity to provide more Global Area Network (GAN) High Speed Data (HSD) services
- Used by CNN and Fox News as Katrina came ashore.
- Provided free terminals and airtime to link Congressional staff visiting the zone.
- Along with Stratos Global, provided free airtime for voice calls to support the initial response in the first week after the levees broke.
- Used by the US Army, Inmarsat's helicopter-mounted terminals provided situational awareness and mobile command post to coordinate disaster-zone operations.
- Partner Thrane & Thrane equipped an RV for mobile voice, data and video conferencing in Baton Rouge and sponsored a mobile call center for evacuees to use to contact relatives.





Intelsat, Ltd.



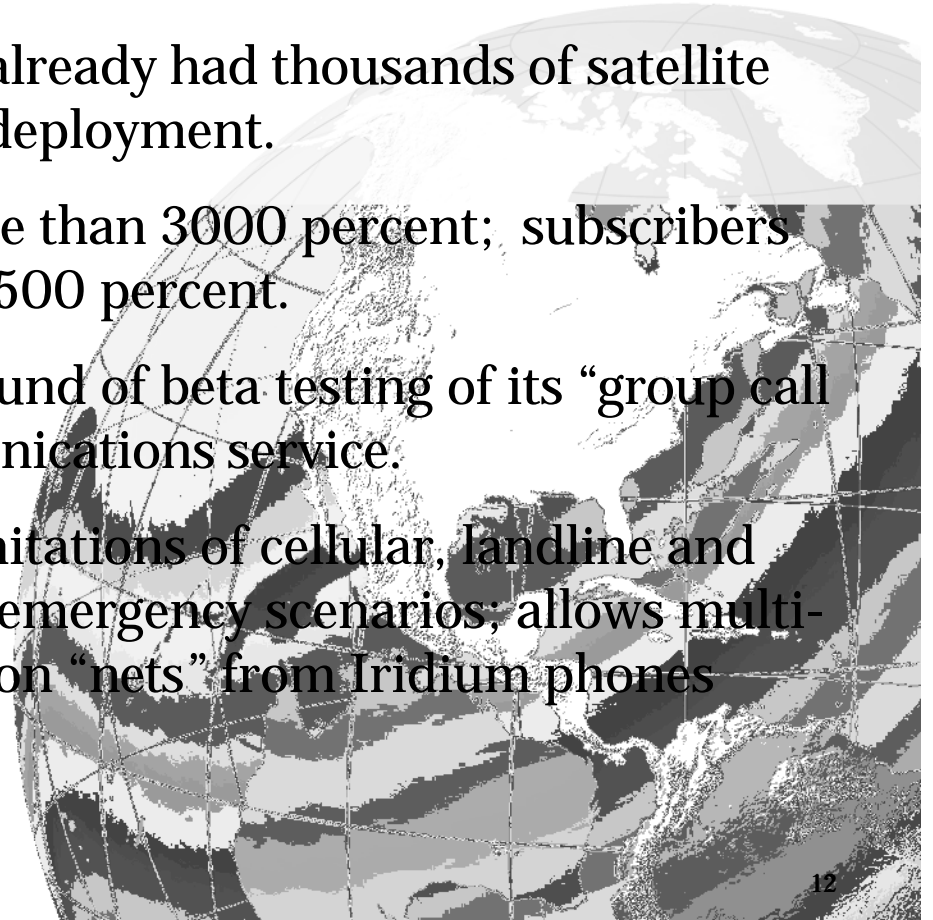
- **Intelsat, Ltd. quickly reconfigured capacity to enable:**
 - **Free cellular services via Cingular**
 - **Emergency services via mobile vans for relief agencies, Louisiana State Police, and shelters for Nextel/Sprint, MCI and AT&T**
 - **ViaSat services to Qualcomm for emergency response and relief agency personnel throughout the affected area**
 - **Satellite service to mobile offices and command centers, such as vans, trucks, and buses for DHS and FEMA**
 - **Satellite service in support of National Guard Units led by the South Carolina National Guard for DISA**
 - **Live coverage for ABC News**
 - **Satellite news gathering feeds from N.O. to London for Sky News London**
 - **On-air programming for Petrocomm**



Iridium Satellite LLC



- Rapidly moved mobile satellite communications equipment into the hands of federal, state and local 1st responders.
- Federal government already had thousands of satellite phones available for deployment.
- Traffic increased more than 3000 percent; subscribers increased more than 500 percent.
- Completed its first round of beta testing of its “group call push-to-talk” communications service.
 - Overcomes the limitations of cellular, landline and radio networks in emergency scenarios; allows multi-user communication “nets” from Iridium phones worldwide.





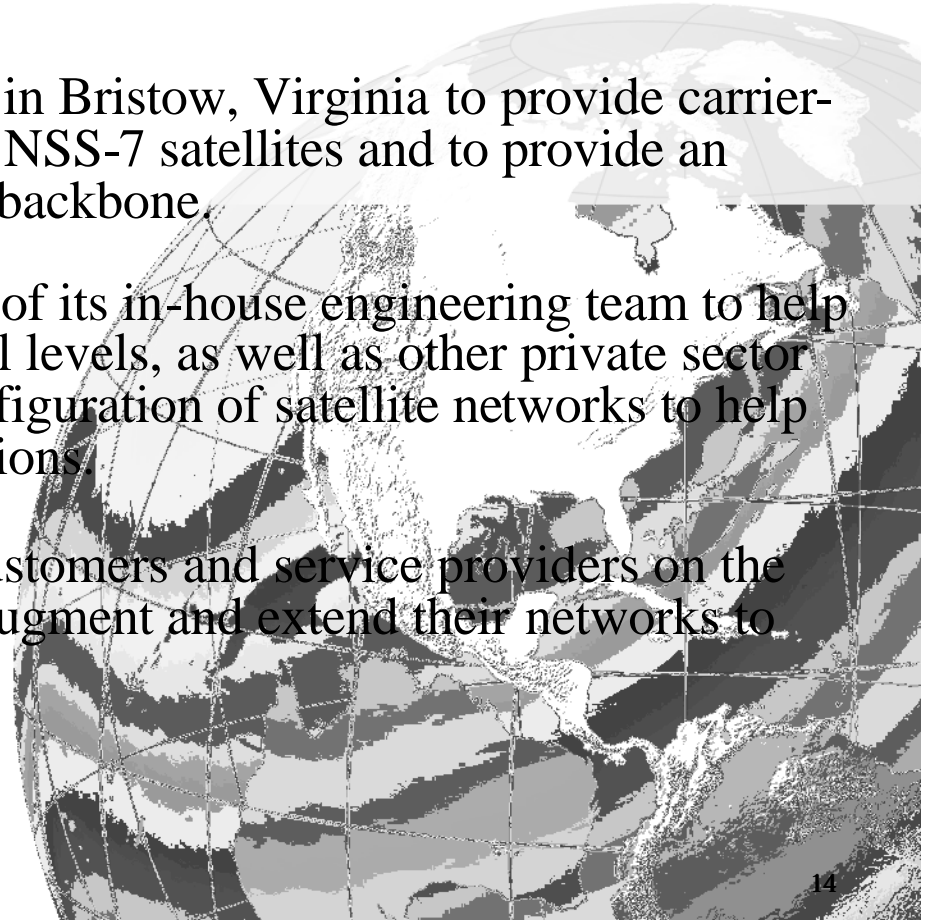
Mobile Satellite Ventures

- Reached out to Federal, State and local government agencies and relief organizations offering handsets at cost;
- Aided disaster relief efforts by donating free airtime during the immediate recovery effort to all state and local agencies providing direct assistance to the hurricane relief efforts;
- Worked with other telecommunications companies to provide on-site communications to displaced citizens in the affected areas;
- Providing satellite service to critical MSV satellite service users, including the Mississippi Emergency Management Agency, the Louisiana Department of Homeland Security and Emergency Preparedness, the Federal Emergency Management Agency, the American Red Cross, and other first responders; and,
- Looking toward the future, MSV is moving forward with the deployment of an ancillary terrestrial component to its satellite system which will make communications reliable in such emergency situations. Our new hybrid satellite/terrestrial network will make communications ubiquitous and affordable using handsets similar to those most Americans carry in their pockets today.



New Skies Satellites B.V.

- Donated satellite capacity on the two satellites in its fleet that provide coverage to the affected region, its C-band NSS-806 and its C- and Ku-band NSS-7, to enable others to establish ground networks.
- Made available at no cost its earth station in Bristow, Virginia to provide carrier-grade connectivity with the NSS-806 and NSS-7 satellites and to provide an interconnection point to the U.S. Internet backbone.
- Offered at no cost the consulting services of its in-house engineering team to help emergency responders at all governmental levels, as well as other private sector communications companies, with the configuration of satellite networks to help restore and maintain reliable communications.
- Donated satellite capacity to its current customers and service providers on the Mississippi Gulf Coast to allow them to augment and extend their networks to lend their support to recovery efforts.

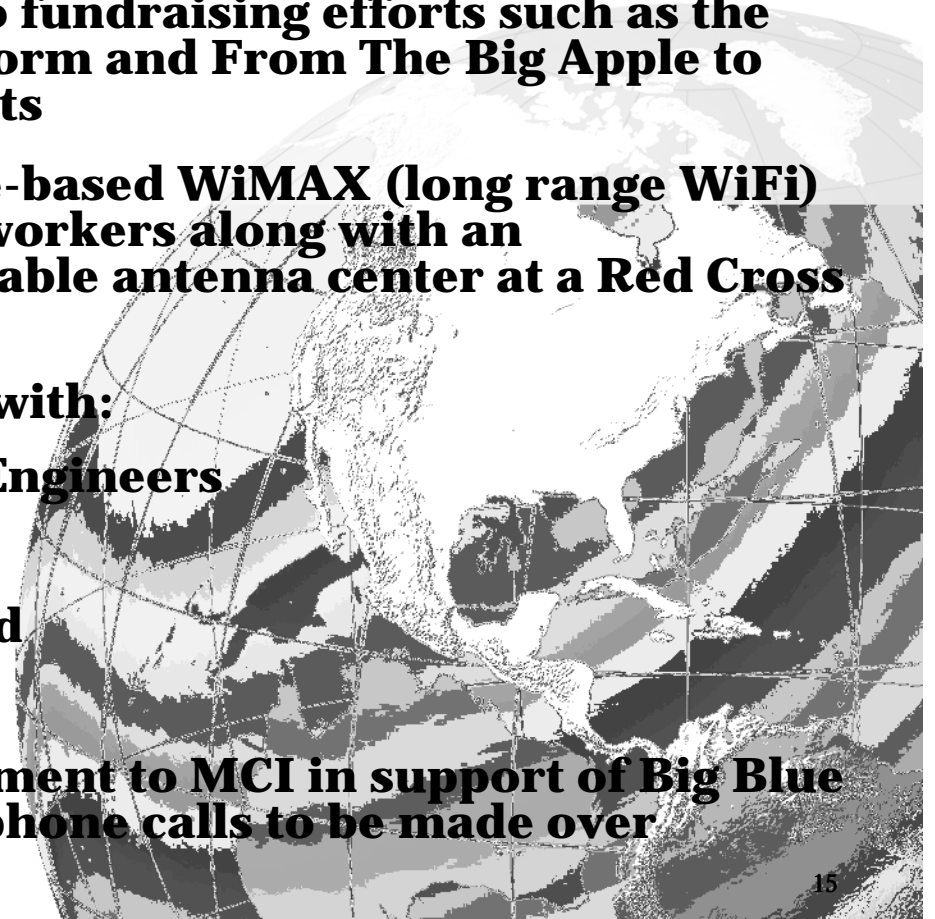




PanAmSat



- **Donated satellite capacity to the Red Cross to provide communications to about 40 of their sites in the region.**
- **Donated capacity to fundraising efforts such as the Shelter from the Storm and From The Big Apple to the Big Easy concerts**
- **Deployed a satellite-based WiMAX (long range WiFi) network for relief workers along with an experimental inflatable antenna center at a Red Cross center in Biloxi.**
- **Currently working with:**
 - **Army Corps of Engineers**
 - **FEMA**
 - **U.S. Coast Guard**
 - **U.S. Navy**
- **Provided space segment to MCI in support of Big Blue trailers that allow phone calls to be made over satellite.**

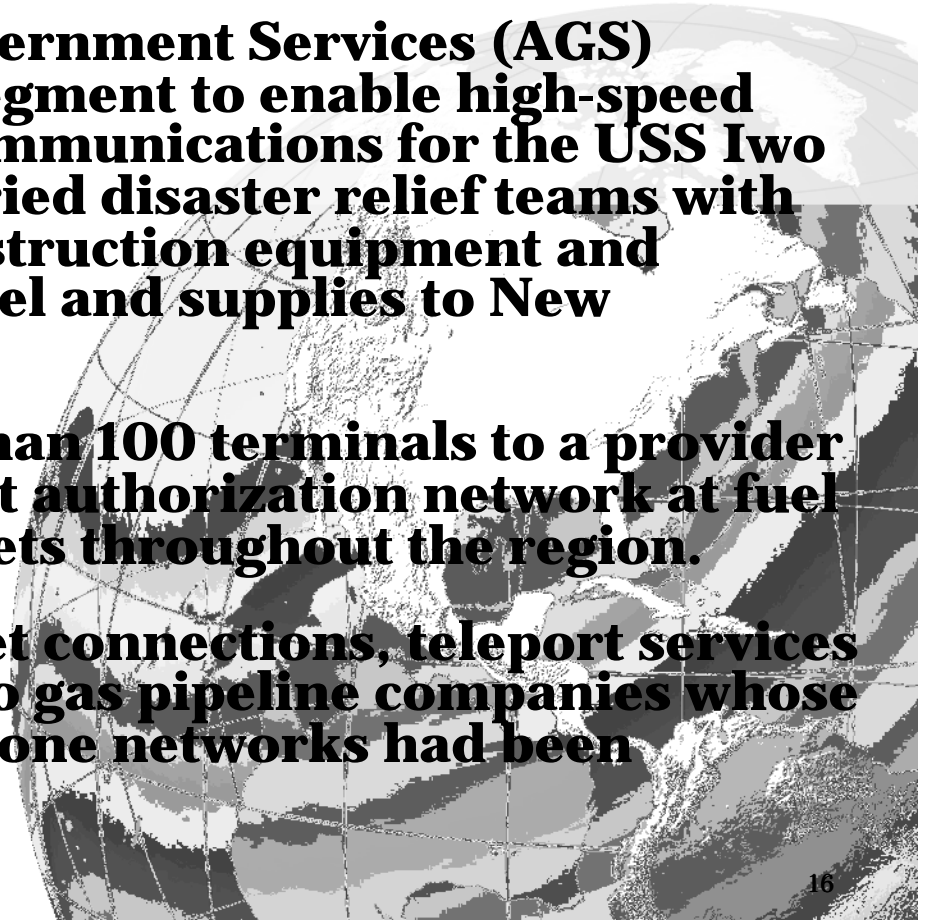




SES AMERICOM



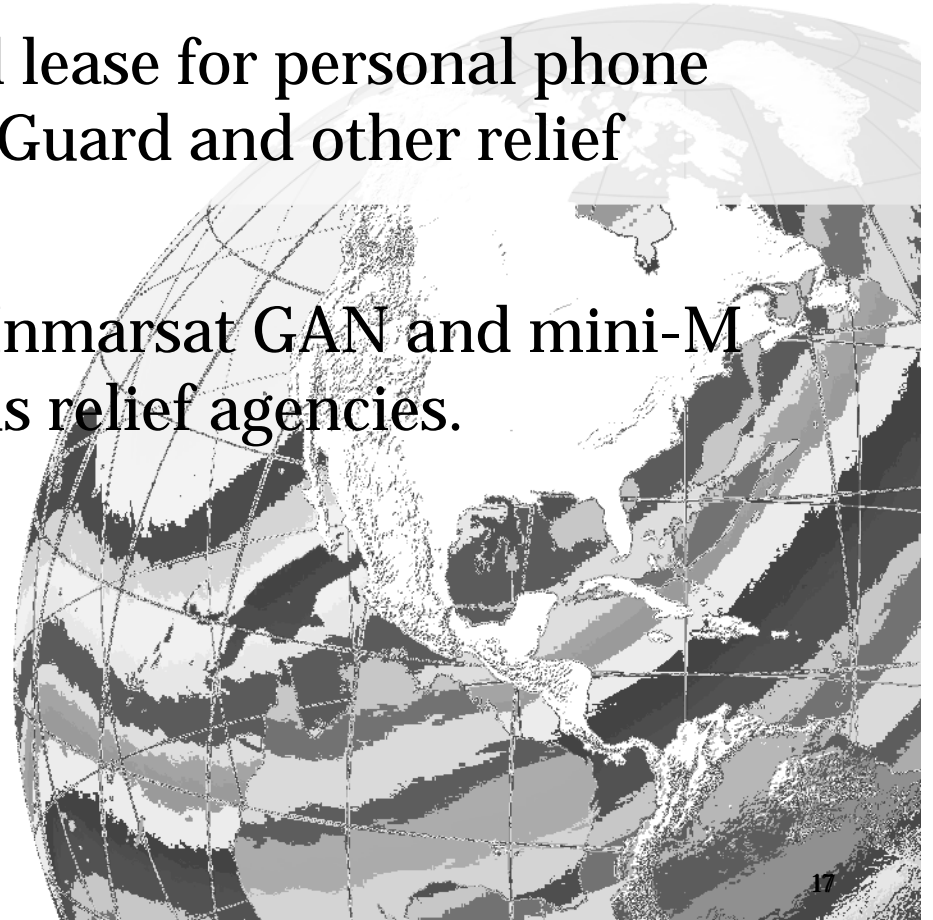
- **Donated satellite bandwidth to support telecommunications among the National Guard, the U.S. Marines and the Red Cross.**
- **AMERICOM Government Services (AGS) donated space segment to enable high-speed ship-to-shore communications for the USS Iwo Jima, which carried disaster relief teams with amphibious construction equipment and medical personnel and supplies to New Orleans.**
- **Supplied more than 100 terminals to a provider installing a credit authorization network at fuel and grocery outlets throughout the region.**
- **Provided Internet connections, teleport services and bandwidth to gas pipeline companies whose terrestrial backbone networks had been damaged.**





Stratos Global

- Deployed a satellite team to provide free Inmarsat GAN service.
- Provided a full period Ku-band lease for personal phone and data calls for the National Guard and other relief workers.
- Provided Iridium phones and Inmarsat GAN and mini-M terminals and service to various relief agencies.





XM Satellite Radio

- Provide coast-to-coast reception for XM listeners, allowing millions of people to receive information before, during and after Hurricane Katrina.
- XM Emergency Alert (Channel 247) tracked the storm, reported on evacuation routes, and currently provides updates about storm clean-up, road closures, school closings, and other vital public information
- Launched Red Cross Radio (Channel 248) to assist the relief effort by providing information directly to Red Cross workers.
- Donated more than 200 radios for Red Cross workers to listen to the Red Cross Radio channel.
- Delivered a reliable, dedicated audio channel to emergency personnel/decision-makers across various levels of government and multiple jurisdictions with critical information from NOAA, HHS, DHS, and FEMA.
- Because XM satellite network is not susceptible to terrestrial calamities, it can be used to deliver a reliable, dedicated audio channel to emergency personnel and decision-makers across various levels of government and across multiple jurisdictions.